

NEWSLETTER

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BAY-DELTA FISHERY PROJECT
Winter 1993

Readers are encouraged to submit brief articles or ideas for articles. Correspondence, including requests for changes in the mailing list, should be addressed to Randy Brown, California Department of Water Resources, 3251 S Street, Sacramento, CA 95816-7017.

Clifton Court Forebay

Clifton Court Forebay, a regulating reservoir with a capacity of about 30,000 acre-feet, is located at the intake to the Sate Water Project Delta Pumping Plant. This fall there have been two Inter-agency efforts designed to provide information to help us better understand the effects of the forebay on fish that may have been entrained due to project operations.

The first of these studies, started in early November, involves estimating the numbers of mostly sublegal striped bass in the forebay and determining if the striped bass population can be reduced by intensive fishing. The seining program has also captured several large green and white sturgeon, adult Chinook salmon (probably San Joaquin fall run), and large channel catfish. The table on page 2 indicates the numbers and sizes of 20 species of fish captured so far.

Striped bass are thought to be the principal predatory fish in the forebay. Although the striped bass studies will continue through the winter, there have already been

some interesting results. Using mark and recapture techniques, we estimate 160,000 sublegal striped bass were in the forebay in November. Additional estimates will be made periodically to determine if removing striped bass actually results in a reduced population. Recoveries at other sampling sites in the Delta of striped bass tagged in the forebay indicate that, as expected, there is movement in and out of the reservoir.

Predator fish are being captured by a commercial fisherman under contract to DWR. The 5-day per week seining operation is under the direct supervision of DFG staff. Catches are generally in the range of a few to several hundred striped bass per day. There were 191 legal-sized (18 inches and over) striped bass removed from Clifton Court Forebay between November 16 and December 21. Captured fish are released alive at several Delta locations. The original release site on the lower Sacramento River was eliminated because of winter Chinook concerns.

DWR and DFG also conducted a late-fall experiment in mid-December to estimate the loss rate of juvenile salmon across the forebay. The study was designed to help determine if the loss rate is affected by prey size and temperature. Most of the earlier studies had been conducted in spring, with relatively small fall-run smolts. In the present study, about 15,000 late-fall Chinook (average size 120 mm) were obtained from Coleman National Fish Hatchery. Two releases were made, about 12,000 near the forebay intake and 2,000 directly in front of the fish screens. The spray-dyed fish (a different color for each release group) were then collected in the salvage operations. An average daily pumping rate of 4,000 cfs was maintained for the 5-day study.

Preliminary results show a loss rate of about 75 percent, which is in line with the rate predicted from a regression equation of loss rate and pumping. A draft report was to have been available for staff review by January 8.

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**CATCH OF VARIOUS SPECIES IN CLIFTON COURT FOREBAY,
November 16 — December 21, 1992**

Species	Number Measured	Mean Length	SD	Minimum Length	Maximum Length	Total Catch
Golden shiner	N/A	N/A	N/A	N/A	N/A	1
Pacific brook lamprey	1	69	N/A	69	69	1
Sacramento sucker	1	472	N/A	472	472	2
Smallmouth bass	2	368	99	298	438	2
Black crappie	N/A	N/A	N/A	N/A	N/A	3
Bluegill	3	171	28	151	203	4
Brown bullhead	N/A	N/A	N/A	N/A	N/A	6
Redear sunfish	2	248	1	247	248	7
Chinook salmon	10	686	146	510	887	10
Sacramento blackfish	14	433	47	295	471	24
Splittail	8	327	33	282	376	24
Largemouth bass	23	361	51	282	497	28
Green sturgeon	28	657	208	416	1632	32
Goldfish	10	405	17	372	425	66
White sturgeon	63	1091	174	811	1643	72
Carp	109	587	66	420	758	374
American shad	79	280	40	178	405	475
Channel catfish	114	489	68	236	628	517
White catfish	86	359	42	215	520	655
Striped bass	1864	321	106	53	1105	10852
TOTAL						13,155

Data Manager

Through a rather complicated process, the Interagency Program obtained the services of a data manager. Former EPA employee Olof Hansen will be hired by USBR but will be under the technical supervision of Perry Herrgesell. The arrangement is further complicated in that Olof's office will be in San Francisco and much of the work may be Sacramento and Stockton. This may be a pilot telecommuting project.

EPA and the Interagency Program are jointly funding this position. Olof's first task will be to meet with the Interagency data committee to better define his responsibilities and assignments and those of the committee.

Bay/Delta Oversight Council

Governor Wilson recently announced formation of the Bay/Delta Oversight Council, which will assist in preparing an environmental impact report on long-term actions to protect the Bay/Delta while permitting water diversion. The 22 members of the council represent environmental, urban, and agricultural interests.

BDOC will report to the Water Policy Council, chaired by Secretary for Resources Doug Wheeler. John

Amodio, most recently Deputy Director of the Office of Planning and Research, was appointed Executive Director. With help from the council, Amodio will select a 6- to 8-person technical advisory committee to ensure technical adequacy of the findings. Pete Chadwick (DFG), Ed Huntley and Katy Striemer (DWR), and Doug Robotham (Resources Agency) will serve as liaison between the BDOC and The Resources Agency.

Interagency Program staff can expect to provide data, review, and perhaps write portions of the documents required to complete this important effort. One of the first requests by Amodio and his staff was for a briefing by DFG-Stockton on status and trends of Bay/Delta biological resources. This will be followed by a similar briefing on DWR's planning programs. Briefings by other Interagency Program participants are also expected.

Decision 1630

In December, SWRCB released a draft of Water Right Decision 1630. Comments were due by January 11, and the Board expects to adopt the decision in late January. Several organizations have petitioned SWRCB to extend the comment period by 60 days and to hold one or more public hearings before adopting the decision.

Decision 1630 is to provide interim (5-year) and long-term protection to Bay/Delta environmental re-

sources in keeping with Governor Wilson's April 1992 water policy statement. SWRCB's stated objective is to provide measures that stabilize or enhance public trust resources in the estuary.

Decision 1630 will affect water project operation and the Interagency Program in many ways. Some of the technical details to be worked out include developing daily reverse flow (Qwest) values to guide project operation; "real

time" monitoring of fish abundances, which will in turn affect project operation; and defining the meaning of "significant" numbers of fish. Decision 1630 also provides for a new monitoring program and for various water-user groups to help fund Bay/Delta monitoring.

Implications of Decision 1630 will be summarized in this Newsletter as they are sorted out. An SWRCB member will discuss Decision 1630 at the annual workshop in March.

Hydrologic and Operational Data

As shown at right, Delta outflow remained relatively low through fall until a peak of over 20,000 cfs in mid-December. Also, a small peak the first week in November resulted in some winter Chinook juveniles entering the Delta.

The daily operations report, source of the plotted data, is a preliminary estimate of important Delta flow, operations, and water quality information. However, the report has limited distribution and often arrives several days late. Therefore, some of the data are being included in the California Data Exchange Center database. Delta outflow, project pumping, and Antioch flow (Qwest) will be included. DAYFLOW will still be the final reference for these measurements.

An access code is needed to obtain CDEC data by modem. Contact David Parker, DWR (916/653-6448), for information on CDEC.

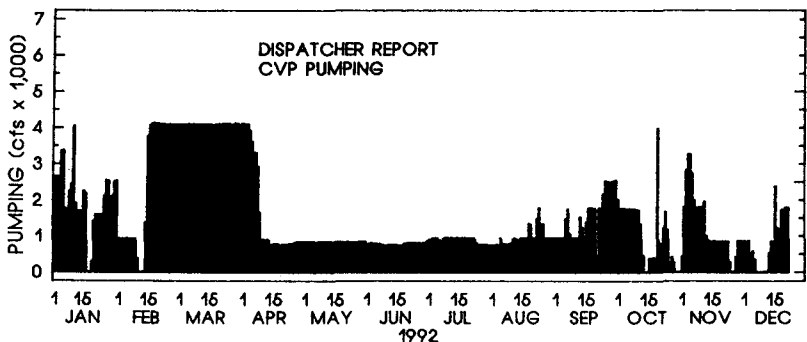
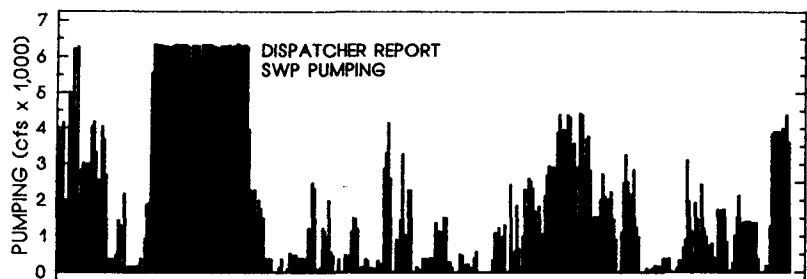
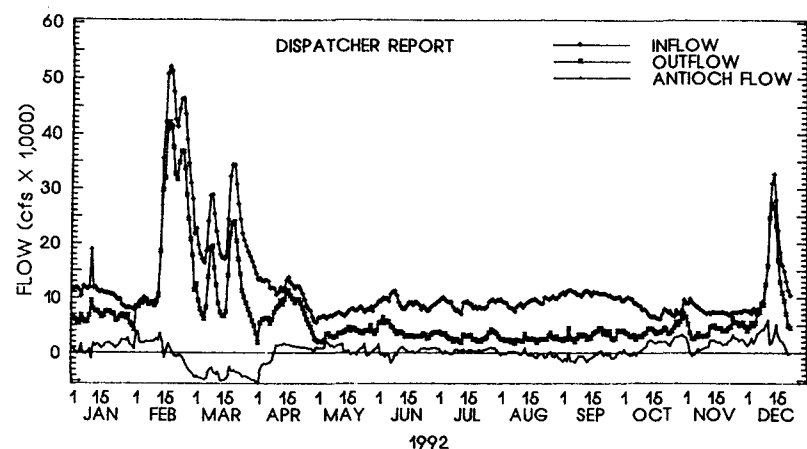
South Bay Spring Bloom Study Report

Response of zooplankton and bacterioplankton populations to the 1991 South San Francisco Bay spring phytoplankton bloom was investigated by personnel from San Francisco State University's Tiburon Center and BioSystems Analysis, Inc. The field study was part of a larger program involving personnel from USGS and other universities.

Briefly, both zooplankton and bacterioplankton responded to the bloom. *Acartia hudsonica* egg production rate increased threefold, and bacterioplankton production increased fivefold. Zooplankton abundance increased slightly through the period of the bloom.

Bacterioplankton biomass increased threefold, then declined to pre-bloom levels. Bacterioplankton specific growth rates varied closely with primary production, and ranged from 0.2 to 2.8 per day. Although the 1991 spring bloom was small (maximum chlorophyll concentration was 15 $\mu\text{g/L}$) relative to previous South Bay spring blooms, the data indicate the bloom is an important event in South Bay plankton dynamics.

Copies of the 35-page report may be obtained by writing to Dr. J. T. Hollibaugh at the Tiburon Center, P.O. Box 855, Tiburon, CA 94920. Please enclose \$3.50 to cover costs of printing and postage.



DAYFLOW Revision

Input data from 1956 to present are being reacquired for the DAYFLOW program. To estimate an areal mean precipitation value, seven Delta stations are now being used instead of just a single station at Stockton. A new runoff parameter to be included in precipitation calculations will take into account the type of soil or water surface upon which the rain falls. New consumptive use values will be developed and included, based on the most recent land use survey. Some other calculated parameters are also being adjusted. The DAYFLOW database for the period of record, including 1991-92, should be available in early February.

Delta Smelt

The preliminary fall midwater trawl Delta smelt index is 159.7. As shown in the figure (right), this fall index (September through December) is lower than in the past few years and during the pre-decline period. It is in the same range as in the mid-1980s.

The monthly midwater trawl surveys will continue through April as part of the Interagency Delta Smelt Study. The boat crew samples 119 sites, weather permitting, and each survey requires 8 days to complete.

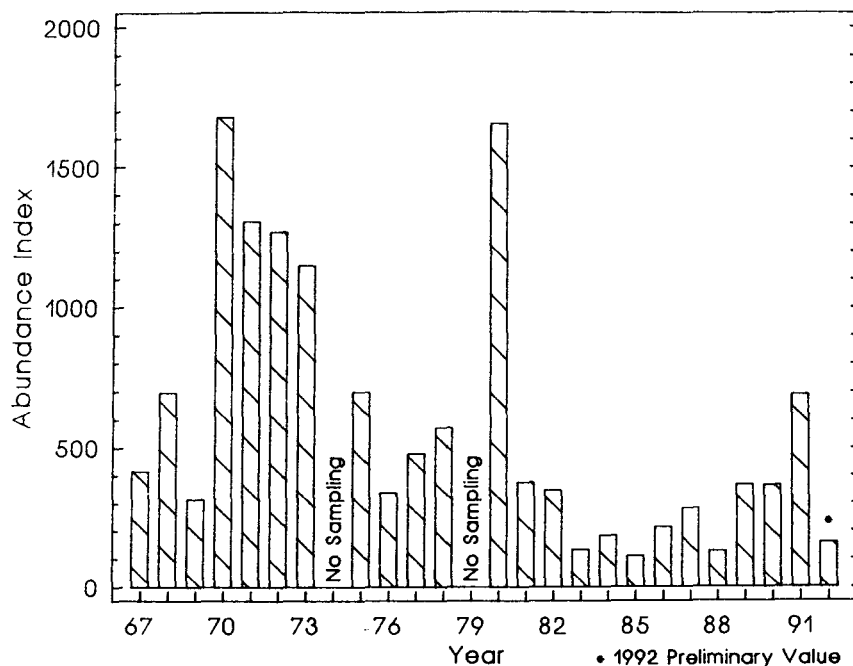
Upcoming Meetings

Don Stevens announced that the annual Striped Bass Workshop will be in Stockton on February 23 and 24, 1993. The workshop, which is by invitation only, is held to review the past year's results and discuss any program changes that may be needed in the upcoming field season.

The annual Interagency Workshop will be held at Asilomar Conference Center on March 3 through 5, 1993. The program will be similar to those in past years and will include discussions of Decision 1630, the CVP Improvement Act (PL 102-575), and EPA involvement in setting Bay/Delta water quality standards. All Interagency Program staff members are encouraged to attend. A tentative agenda appears on page 5.

On February 3 and 4, the California Fish and Game Commission will meet in Long Beach to reconsider its decision not to list Delta smelt.

DWR will be organizing an informal workshop, probably in early April, to review results of the Delta smelt studies now underway by DFG, DWR, and university and private consultants. Leo Winternitz and Dale Sweetnam will coordinate the meeting.



Neomysis/Zooplankton

The lowest *Neomysis* population of record was reached in September 1992, and abundance continued downward to new lows in October. Population densities were $<1/m^3$ at all stations in September and October compared to typical levels of 20-40/ m^3 .

Temperature regulation of mysid growth in summer appears to be the reason for the low population size (in addition to loss of concentration by 2-layered flow). Temperatures have been elevated since the beginning of the drought and were exceptionally high in 1992. At high temperatures, females are smaller and, hence, carry fewer eggs. The short length also means they are dying sooner and, thus produce fewer broods. At low population densities, males and females probably also have difficulty finding each other during the short

intermolt period when the female is receptive.

A new mysid was collected in western Suisun Bay in August. We sent specimens to Dr. Bowman of the Smithsonian, who identified it as a member of the genus *Acanthomysis* but not a West Coast species. Dr. Bowman is now searching the literature on Asiatic species.

Eurytemora disappeared from our catches in September, as it has since it became established in 1988. Abundances of *Sinocalanus* and *Acartia* were low all year, probably because of clam predation. In the case of *Sinocalanus*, negative interaction from *P. forbesi* cannot be ruled out.

— Jim Orsi, DFG

INTERAGENCY ECOLOGICAL STUDIES PROGRAM ANNUAL WORKSHOP
March 3-5, 1993 — Asilomar Conference Center

TENTATIVE AGENDA

Wednesday, March 3

- 1330 Welcome and Announcements Perry Herrgesell (DFG)
- COMMITTEE REPORTS AND ACTIVITIES Chair: Perry Herrgesell
- 1340 Hydrodynamics Larry Smith (USGS)
- 1355 Fisheries and Water Quality Marty Kjelson (USFWS)
- 1410 Fish Facilities Pat Coulston (DFG)
- 1425 Data Management Sheryl Baughman (USBR)
- 1440 Delta Outflow / San Francisco Bay Chuck Armor (DFG)
- 1455 Food Chain Group Zach Hymanson (DWR)
- 1510 Interagency Program Revision Team Perry Herrgesell (DFG)
- 1900 Guest Speaker Dan Gotschall (Retired from DFG)

Thursday, March 4

- 0815 Announcements Perry Herrgesell (DFG)
- ENDANGERED SPECIES Chair: Marty Kjelson
- 0825 Winter-Run Biological Assessment Sheila Greene (DWR)
- 0850 Winter-Run Field Survey Spencer Kovekamp (USFWS)
- 0915 Delta Smelt Project Update Dale Sweetnam (DFG)
- 0940 Longfin Smelt / Splittail Update Randy Baxter (DFG)
- 1005 BREAK
- FACILITIES Chair: Leo Winternitz
- 1030 Delta Agricultural Diversion Study Stephani Spaar (DWR)
- 1055 Tracy Fish Facility Evaluation Lloyd Hess (USBR)
- 1120 Predator/Predation Research at Clifton Court Forebay Terry Tillman (DFG)
- 1145 Fish Facility Design Project Overview Darryl Hayes (DWR)
- 1210 LUNCH
- NEW DIRECTIONS Chair: Steve Ford
- 1900 Policy and Implications of Decision 1630 Mark Del Piero (SWRCB) (Invited)
- 1925 CVP Improvement Act (PL 102-575) Dan Beard (DFG) (Invited)
- 1950 CVP Acquisition by California Don Glaser (USBR) (Invited)
- 2015 EPA Water Quality Recommendations Harry Seraydarian (EPA) (Invited)
- 2040 Bay/Delta Oversight Council John Amodio (BDOC)

Friday, March 5

- HYDRODYNAMICS Chair: Pete Smith
- 0815 Null Zone Hydrodynamics Jon Burau (USGS)
- 0840 Particle-Tracking Model Tara Smith (DWR)
- 0905 Old and Middle Rivers UVM Rich Oltman (USGS)
- 0930 BREAK
- OUTSIDE TOPICS Chair: Jim Sutton
- 0955 Estuarine Carbon Budget Alan Jassby (UCD)
- 1020 *Potomocubula* Update Jan Thompson (USGS)
- 1045 Production Base in the Estuary Tim Hollibaugh (TCES)

A POSTER SESSION will be held concurrently with the workshop.

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NEWSLETTER
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Interagency Ecological Studies Program for the Sacramento-San Joaquin Estuary

NEWSLETTER

A Cooperative Effort of:

California Department of Water Resources
State Water Resources Control Board
U.S. Bureau of Reclamation
U.S. Army Corps of Engineers

California Department of Fish and Game
U.S. Fish and Wildlife Service
U.S. Geological Survey
U.S. Environmental Protection Agency

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